Rural Retreat Lake:
A Family Destination!

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Rural Retreat Lake is a 90-acre lake in southwestern Wythe County. Built in 1969 by the Virginia Department of Game and Inland Fisheries (VDGIF), the lake offers something for everyone in the family! VDGIF manages the lake for fishing. Wythe County Parks and Recreation Department runs a campground, swimming pool, picnic area, and a concession that sells bait, tackle, and food. Between October 1 and June 15, anglers with a trout stamp can fish a 2-acre pond next to the lake that is regularly stocked with trout.

Rural Retreat Lake has a small watershed (the land that drains into the lake), with 23 acres of watershed for every acre of lake. As a comparison, a nearby flood control lake has 223 acres of watershed for every acre of lake! Rural Retreat Lake was built with a small watershed so nutrients that run off the land upstream from the lake remain in the lake longer. The longer these nutrients stay in the lake, the more pounds of fish the lake will be able to produce. However, the amount of nutrients reaching the lake can cause problems if they are coming in faster than the lake's food chain can process them. Too many nutrients can cause excess algae and aquatic plant growth. Nutrients are just one factor that control how good the fishing is at Rural Retreat Lake. The length of the growing season and the number of fish in the lake determine how fast fish will grow. Fish in mountainous areas of Virginia (like Wythe County) grow more slowly than fish in the Piedmont and Coastal Plain areas of the state. Fish populations with high numbers grow more slowly than fish populations with lower numbers.

VDGIF's fish management objectives for the lake are to:

(1) Maintain largemouth bass and bluegill populations in the lake in a state of "balance". "Balance" refers to the relative state of stability between the largemouth bass as predator and the bluegill as prey.

(2) Monitor the black crappie population to see if numbers and sizes of this species remain in healthy ranges.

(3) Maintain muskellunge and channel catfish fisheries in the lake through regular stocking of these species.

(4) Establish a hybrid striped bass population using annual stocking to thin out abundant black crappie and provide additional fishing opportunities.

Rural Retreat Lake fishing regulations

Species	Size Limit	Creel Limit
Bluegill and other sunfish	None	50 per day total
Black Crappie	None	None
Channel Catfish	None	20 per day
Largemouth Bass	18 inch minimum size limit	1 per day
Muskellunge (Muskie)	42 inch minimum size limit	1 per day
Northern Pike	30 inch minimum size limit	1 per day
Hybrid Striped Bass	18 inch minimum size limit	2 per day

How do biologists sample the lake's fish population?

Electrofishing

"Electrofishing" is a fish collection technique that uses a boat-mounted generator and voltage regulator to put an electric shock into the water. The shock affects fish that swim near the boat's electric field, which is limited to an area within a few feet around the boat. "Electroshocked" fish actually swim toward metal booms dangling off the front of the boat, where they are temporarily stunned and can be netted by biologists. After measuring their lengths and weights, biologists return the "shocked fish" to the area where they were collected. This sampling technique is best for fish that live in shallow water along the lake's shoreline or ones that move into shallow waters during certain times of year (such as spring spawning season). Biologists use electrofishing to collect species like largemouth bass, bluegill, and black crappie.

Virginia Department of Game and Inland Fisheries biologists collect fish using electrofishing.

What are those strange terms biologists use?

Scientists like to name things they observe in the natural world. Biologists have their own set of terms. Fisheries biologists talk about things like "size structure" and "proportional size distribution". What in the world do these terms mean? All of them refer to things that fisheries biologists measure on a regular basis.

Size Structure and Proportional Size Distribution

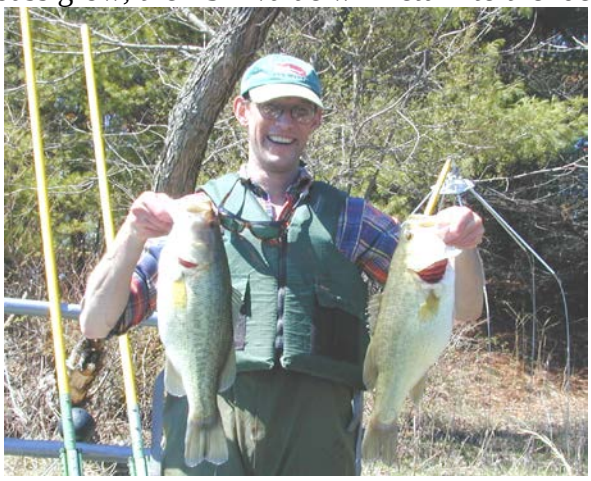
Size structure refers to the sizes and numbers of a fish species. Fisheries biologists collect a sample of fish from a waterbody, measure them, and then use an index to describe the "size structure" of those fish. One index used to determine whether there are good numbers of fish in a population is "Proportional Size Distribution" (PSD), which is the percentage of fish over "stock size" (adult size fish) that are also over "quality size" (the size anglers like to catch). Stock and quality lengths change with fish species. For largemouth bass, PSD is the percentage of bass over 8 inches that are also over 12 inches. "Proportional Size Distribution-Preferred" (PSD-P), 'Proportional Size Distribution-Memorable" (PSD-M), and Proportional Size Distribution-Trophy (PSD-T) measures the percentage of stock size fish that are over sizes called "preferred", "memorable, and "trophy", which change with different fish species. For largemouth bass, preferred fish are 15 inches, memorable fish are 20 inches, and trophy fish are 25

inches. PSD is a neat index because it lets fisheries biologists know whether enough reproduction, survival, and growth are occurring in a fish population. Healthy ranges for PSD, PSD-P, PSD-M and PSD-T change with different management goals for a population.

What is the current status of Rural Retreat Lake's fish populations?

Largemouth Bass (see Table 1 and Figure 1)

In 1993, in response to the lack of good sizes of largemouth bass in the lake (few bass over 12 inches), Department biologists passed an 18-inch largemouth bass size limit with a creel limit of 1 per day. This size limit shifted the largemouth bass population to a "balanced population". Spring electrofishing samples since 2004 show that 29 to 73% of the largemouth bass over 8 inches are also over 12 inches in length. The proportion of largemouth bass over 8 inches that are also over 15 inches ranged from 8 to 31% since 2004. Ideal ranges for a balanced largemouth bass population are PSD values between 40 and 70 and PSD-P values between 10 and 40. Current values of PSD and PSD-P for largemouth bass at Rural Retreat Lake indicate the population is nearly balanced. The PSD value of 31 in 2013 was low due to large numbers of 8 and 9 inch largemouth bass in the lake. As these bass grow, the PSD value will return to the ideal range of 40 to 60.



Two memorable largemouth bass caught during spring electrofishing at Rural Retreat Lake.

Bluegill (see Table 1 and Figure 2)

The numbers, body condition, and growth rates of bluegill depend on having the proper number of predator fish (largemouth bass) present to keep their numbers in check. Since 2004, bluegill PSD has been fairly stable, fluctuating between 32 and 49%, which is within the range for a balanced population (PSD values between 20 and 60). The healthy state of the bluegill population is due to the presence of a healthy largemouth bass population.

Black Crappie (see Table 1 and Figure 3)

During spring 1996, fisheries biologists collected 300 black crappie per hour of electrofishing and the average size was 7 inches long. By spring 2002, the black crappie electrofishing catch rate fell to 40 per hour and the average size was 8 inches. Since spring 2005, the black crappie electrofishing catch rate has been over 100 per hour and

the average size is 7.5 inches. The black crappie population in Rural Retreat Lake has come full circle. Ideal ranges for a black crappie population that meets our management objective are a PSD between 30 and 60 and PSD-P greater than 10. The black crappie population in Rural Retreat Lake is not meeting our PSD and PSD-P goals. VDGIF fisheries biologists began stocking hybrid striped bass in 2014 to thin out the dense black crappie population.

Muskellunge

Since 1989, Rural Retreat Lake has received 50 stocked muskellunge per year. This stocking rate has produced a good muskie fishery in the lake. The number of muskie caught from Rural Retreat Lake will never match the numbers caught from the New or James Rivers. However, the continued stocking of these fish in the lake adds to the excitement of anglers visiting the lake, since they never know when one of these giants will take their lure.

A nice size muskie collected from Rural Retreat Lake during fish sampling.

Channel Catfish

Before 2003, channel catfish were stocked every other year to build a consistent fishery in the lake. While we did not evaluate the population, we did observe some nice-sized catfish during spring electrofishing each year. In 2003, following a Department study on survival of stocked channel catfish in small lakes, channel catfish stocking numbers were decreased to 10 per acre. These channel catfish are now stocked at an average size of 10 inches, which is much larger than the average size used in earlier stockings. Stocking larger channel catfish has resulted in a better population in the lake.

Northern Pike

Northern pike were stocked from 1997 to 1999, 2004, and 2009 to eat abundant black crappie in the lake. After evaluating the results, fisheries biologists determined that northern pike were not having the desired effect on the black crappie population. The northern pike we stocked are now over 30 inches long, so they will provide a nice fight on the end of your line if you catch one!

Hybrid Striped Bass

Fisheries biologists managing Rural Retreat Lake began stocking hybrid striped bass in 2014 to control the stunted black crappie population in the lake. Within 3 years, these hybrids should be over 18 inches. Until these fish reach 18 inches, anglers must catch and release them, because the hybrid striped bass size limit at the lake is 18 inches with a 2 per day creel limit.

Table 1. Size structure of largemouth bass, bluegill, and black crappie at Rural Retreat Lake during spring electrofishing since 2004.

Largemouth Bass PSD = percent of bass over 8 inches that are also over 12 inches.
Largemouth Bass RSD-P = percent of bass over 8 inches that are also over 15 inches.
Largemouth Bass RSD-M = percent of bass over 8 inches that are also over 20 inches.

Bluegill PSD = percent of bluegill over 3 inches that are also over 6 inches.
Bluegill RSD-P = percent of bluegill over 3 inches that are also over 8 inches.

Black Crappie PSD = percent of black crappie over 5 inches that are also over 8 inches.
Black Crappie RSD-P = percent of black crappie over 5 inches that are also over 10 inches.

	Largemouth Bass			Bluegill		Black Crappie	
Year	PSD	PSD-P	PSD-M	PSD	PSD-P	PSD	PSD-P
2004	29	12	1	49	1	58	6
2005	52	8	1	39	1	32	4
2007	52	31	10	37	0	21	0
2009	73	24	3	32	0	27	2
2013	31	23	4	33	0	34	2

Figure 1: Sizes and numbers of largemouth bass collected during an electrofishing sample at Rural Retreat Lake in April 2013. The total number collected was 134.

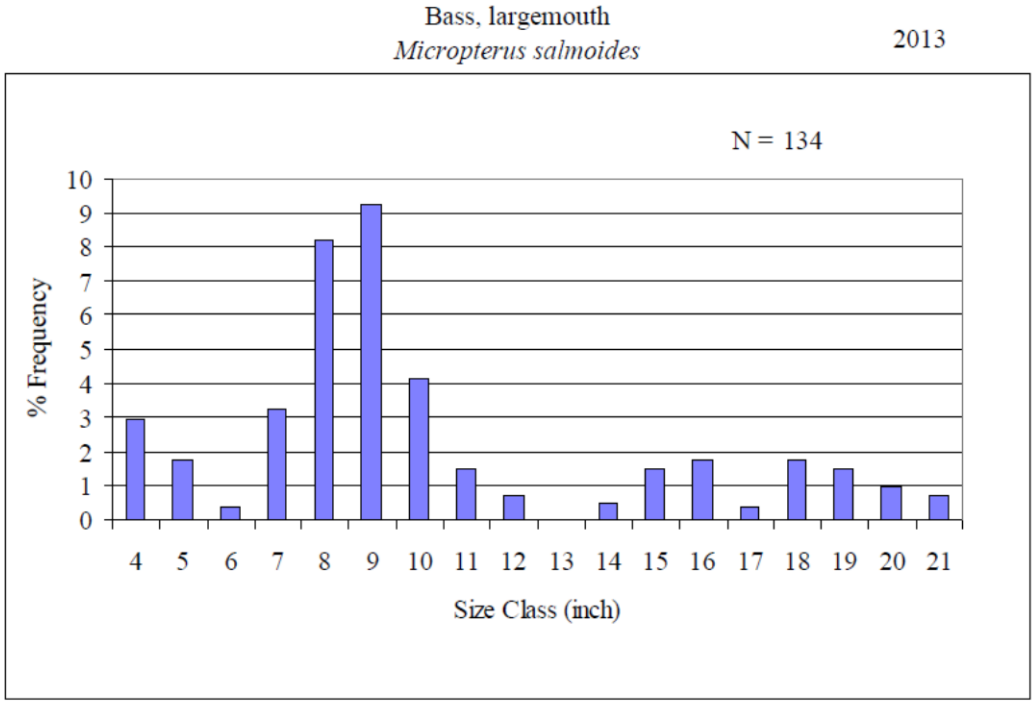


Figure 2: Sizes and numbers of bluegill collected during an electrofishing sample at Rural Retreat Lake in April 2013. The total number collected was 129.

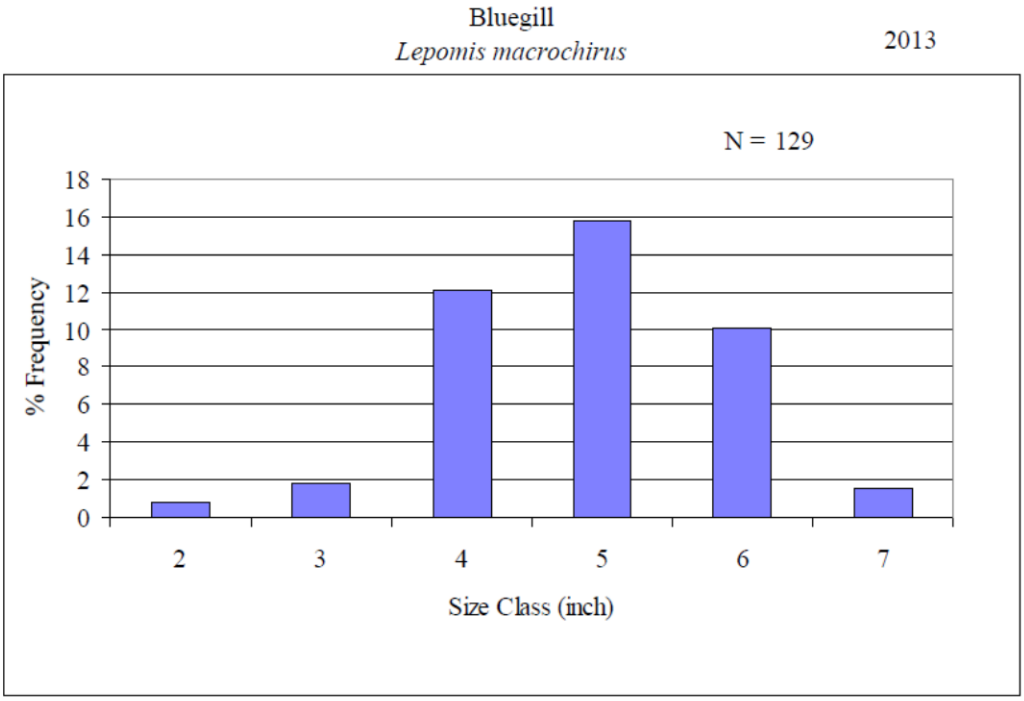
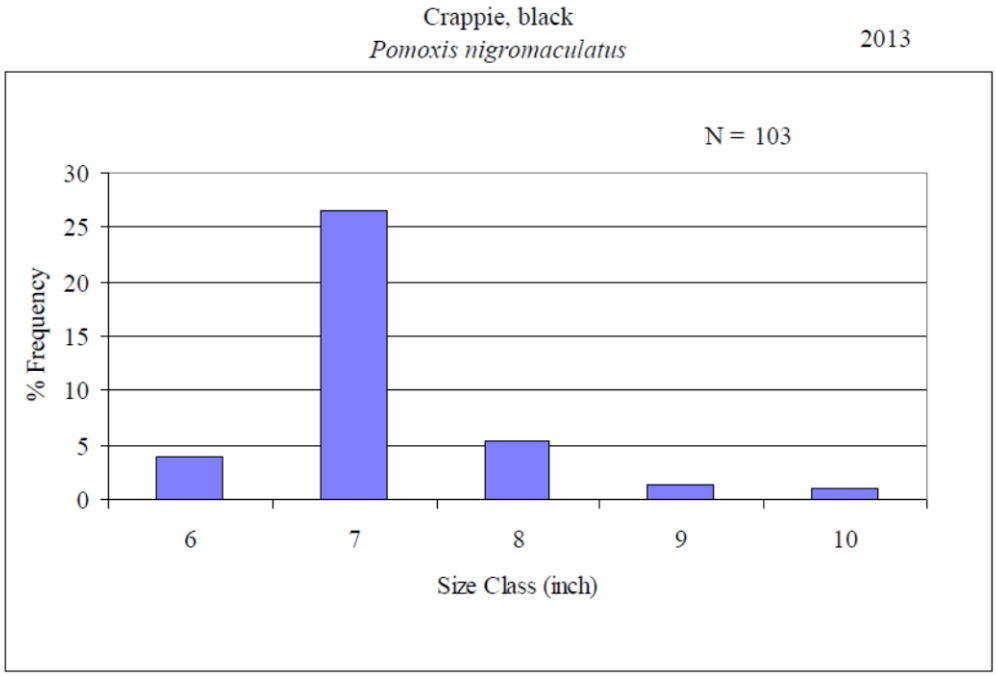


Figure 3: Sizes and numbers of black crappie collected during an electrofishing sample at Rural Retreat Lake in April 2013. The total number collected was 103.




RURAL RETREAT LAKE
WYTHE COUNTY
90 ACRES
North
5' CONTOUR INTERVALS
DAM
677
778
CONCESSION
BOAT RAMP
SWIMMING POOL
CAMPING
5
10
20
25
30
35
TO U.S. RTE. 11
90
616
675
MURPHEYVILLE
615
749
674
677
670
778
RURAL RETREAT
691
VICINITY MAP